

Wholesale Electricity Market Rule Change Proposal Submission

RC_2019_05

Amending the Minimum STEM Price definition and determination

Submitted by

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Submissions on Rule Change Proposals can be sent by:

Email to: support@rcpwa.com.au

Post to: Rule Change Panel
Attn: Executive Officer
C/o Economic Regulation Authority
PO Box 8469
PERTH BC WA 6849

1. Please provide your views on the proposal, including any objections or suggested revisions.

Synergy appreciates the opportunity to provide feedback in response to the call for second round submissions: Amending the Minimum STEM Price definition and determination (RC_2019_05).

In the Draft Rule Change Report (**Draft Report**), the Rule Change Panel (**RCP**) has decided to proceed with Synergy's proposal to introduce a periodic review of the Floor Price (with proposed modifications) but reject Synergy's proposal to adopt an interim Minimum STEM Price of -\$200/MWh.

The Draft Report also discusses the notion that the Minimum STEM Price should potentially be lower than -\$1,000/MWh based on the theoretical ideal that economic efficiency, Market Objective (a), will be maximised when the Minimum STEM Price is low enough to enable differentiation of decommitment costs between generators.

Synergy considers that this notion appears to be based upon a highly theoretical and purist economic approach that does not properly take into account the actual and factual operation

of the market, and thus will lead to outcomes that are, in fact, contrary to the WEM Objectives. The RCP's conclusions, if implemented, would, for the reasons outlined in this submission, result in outcomes that are inconsistent with an economically efficient functioning of the Wholesale Electricity Market (WEM).

The RCP's draft decision to not set a higher priced interim floor price, and potentially allow an even lower floor price to be set as part of periodic reviews, is primarily predicated on the requirement for the floor price to be low enough to enable differentiation of decommitment costs. Synergy considers the RCP's associated analysis is based on flawed analysis of the underlying reasons why and how the floor price may be cleared in the WEM in the real world.

The current design of the WEM will cause the market to continue to clear at the floor price for reasons unrelated to such differentiation of costs.

Specifically, the following market design elements mean that Market Participants are incentivised, or sometimes even required under the WEM Rules, to offer at the floor price even when that price is below their cost to decommit. Instances include:

- 1) **Requirements to self-schedule:** The Market Rules require self-commitment by generators, (meaning that the Market Rules require Market Participants to reflect commitment decisions in their Balancing Submissions) and prohibits infeasible dispatch of Facilities resulting from Balancing Submissions. Market Participants are unable to bid such that they:
 - a. Fail to clear in one trading interval and are then required to generate in a subsequent trading interval within their recall period; nor
 - b. Clear for a quantity requiring their Facility to operate at a level less than the Facility's minimum stable generation level.

Market Participants are therefore incentivised to either offer at their true decommitment levels and risk infeasible dispatch or offer at the price floor to remain on and risk potentially horrific financial outcomes;

- 2) **Forecasting variance:** The decision to commit is made well in advance and takes into account factors such as intertemporal constraints, the current state of the facility, recall times and gate closure restrictions. For Synergy, the decision to commit a base load generator can be required up to 24 hours in advance. This decision is therefore heavily reliant on the accuracy of system demand forecasts which frequently varies between 200MW to 500MW, further impeding a Market Participant's ability to predict when it should offer at its true decommitment cost.
- 3) **Inefficient gate closure restrictions:** The restrictions on Independent Power Purchasers (IPPs) resubmitting after Gate Closure and Synergy's more onerous restrictions on resubmitting mean that it's almost impossible to forecast with any level of certainty the specific Trading Intervals where a Facility will decommit and therefore increase the amount of times a Market Participant must offer at the floor price.
- 4) **Ancillary service obligations:** As the default provider of ancillary services, Synergy is obligated to offer services at the floor price, regardless of where it has been set; and
- 5) **Contractual obligations:** The contractual arrangements that underpin project finances, including those set out in Power Purchase Agreements (PPAs), are difficult

and costly to amend. If the off-taker is liable for the cost of generation, Market Participants operating under PPAs may be incentivised to generate at the Minimum STEM Price irrespective of market price signals and their true decommitment costs.

In the context of the Minimum STEM Price, each of these issues with the WEM design are interrelated and compounding, meaning that the total effect is greater than the sum of the individual parts. In particular, Synergy considers that the RCP's decision in its Draft Report does not adequately address nor mitigate the likely negative effect that maintaining or further decreasing the floor price will have on market efficiency as a result of these interrelated issues, especially in the context of a the floor price being set with increased regularity in the short to medium term.

The compounded effect of the requirement to self-schedule, large forecasting variances and inefficient gate closure restrictions makes it near impossible for Market Participants to respond efficiently to changing load and essentially forces some Market Participants to offer at the Minimum STEM Price, regardless of the price at which it is set. Synergy also notes that these issues have a particularly large and discriminatory effect upon base load generators, which generally have high minimum stable generation levels, long recall periods between start-ups and very high decommitment costs.

An inefficiently low Minimum STEM Price will only result in magnifying the financial penalty to Market Participants who seek to comply with the Market Rules, whether this be for avoiding infeasible dispatch or providing ancillary services.

More seriously, should the Minimum STEM Price be set too low and the market regularly clears at this price, this is likely to unnecessarily expedite the exit of base load generation which may have unintended consequences for system reliability.

These outcomes are inconsistent with the intent of Market Objectives (a), (c) and (d) which promote market efficiency, avoiding discrimination against particular energy options and minimising the long-term cost of supply of electricity.

Synergy encourages the ERA to consider the consequences of approving a floor price at, near, or lower than, $-\$1,000/\text{MWh}$. If such a floor price is set, the inefficiencies associated with the market regularly clearing at that floor price for reasons other than differentiation of decommitment costs will vastly outweigh any efficiencies that may occur when the market clears at or near the floor price to enable such differentiation.

Given the above considerations, and the issues further explored below, Synergy suggests the RCP re-examines its reasons for concluding there is no need to urgently introduce an interim Minimum STEM Price.

Synergy further notes that the interim price of $-\$200/\text{MWh}$ was a suggested price only based on Synergy's calculation of the likely de-commitment costs of a 'relevant' generator and as approximately equal to the price at which the BMO ceases to exhibit price elasticity. However, Synergy is open to the determination of a different, relatively adjacent, number if it is demonstrated that it better-reflects the decommitment costs of participating 'relevant' generators.

2.0 Issues

Synergy wishes to further explore the key issues prevalent in the Wholesale Electricity Market (WEM) that are interrelated with the Minimum STEM Price.

Low demand:

An excessively low Minimum STEM Price will inevitably result in out-of-merit dispatch which is inefficient, compromises security, is costly and in conflict with Market Objectives (a) and (c).

The existing design of the WEM was not structured to account for decreasing load and diversification of WA's electricity supply. Shifting load will mean that, in the longer term, the Minimum STEM Price will be reached with increased regularity and increased certainty. In these instances, Market Participants are likely to bid out of the market at a higher frequency.

Issues will likely arise in relation to a general market failure when the market clears at the price floor and Facilities have bid out of the market and are unable to return to service for evening peak. If application of the WEM Rules results in:

- the Balancing Market incentivising too many coal-fired generation facilities to decommit (e.g. because the relevant Market Participants cannot risk being exposed to an artificially, and inefficiently, low floor price); and
- those Facilities are physically unable to return in time,

there is likely, at times, to be insufficient generation to meet demand without System Management intervening in the market, for example by constraining on some of those Facilities (and therefore constraining off other Facilities).

A market that effectively requires outside intervention to perform its core function of ensuring the safe and economically efficient provision of energy can only be considered a market failure, especially when considered in combination with the balancing market objective that the balancing price is to reflect the cost of dispatch.

To place this into perspective, if Synergy decommits all of its Muja units, these units may not be able to return to service for the evening peak due to recall times. Likely implications to system security and voltage control will precipitate a need for intervention by System Management, which may be forced to dispatch out-of-merit generation.

Base load generators will be effectively constrained on at the cost of the market. However, if the Minimum STEM price triggers the exit of too many base load generators from the SWIS, this may result in even greater system reliability issues due to the resultant unavailability of some ancillary services. If the floor price is maintained at -\$1,000/MWh, or set even lower, these adverse impacts will be exacerbated.

Synergy does, however, acknowledge that proposed changes to the Balancing Merit Order tie-breaker methodology (AEPC_2020_01¹) may reduce the exposure to unwarranted out of

¹ https://aemo.com.au/consultations/current-and-closed-consultations/aepe_2020_01

merit dispatch. These proposed amendments allow Market Participants the option of bidding their Minimum Generation in a separate tranche that would be cleared ahead of Non-active Balancing Facilities and remaining non-Ancillary Services energy in the event of a tie-breaker.

However, the proposed methodology continues to apply a random number to each Facility to determine the priority for decommitment within each tranche. The risk of out of merit dispatch still exists if a large Scheduled Facility with a long restart time was assigned a high random number and was decommitted, leading to an instantaneous generation shortfall.

Load Following Ancillary Services (LFAS):

The RCP asserts that the interaction between the Balancing Market clearing at the Minimum STEM price and LFAS market price is not relevant because Market Participants can take into account the risk of the floor price in its LFAS offers.

There are several issues with the RCP's analysis.

The ERA has stated that, at least in relation to the Short Run Marginal Cost (SRMC) market power mitigation obligations in the balancing market, Market Participants are not allowed to include a "risk margin" as part of its 'costs'. Therefore, the RCP's claim that an LFAS market participant can simply account for negative price cap risks in their LFAS market offers does not appear to be a viable option.

The LFAS Market is fundamentally broken because participants can, and do, withhold small amounts of capacity from the LFAS market forcing Synergy as the default provider to recover large costs over a very small marginal tranche, therefore forcing the LFAS price up unnecessarily. If this includes the need to recover a negative \$1,000/MWh balancing price cost associated with generation by facilities only online for LFAS, the LFAS price could reach astronomically high values to be "cost reflective". This outcome would be highly inefficient and only exists because of flaws in the market design.

LFAS participants that stand to benefit from the balancing market clearing at the floor price can increase the likelihood of this happening by clearing in the LFAS Market. By clearing in the LFAS market without displacing Synergy completely, they will increase the overall quantity of capacity required to be offered into the balancing market at the floor price.

Maintaining the Minimum STEM Price at or below negative \$1,000/MWh results in no economic efficiency gains but only results in inefficiencies such as the potential for massive wealth transfers and incentives for strategic and inefficient bidding behaviours.

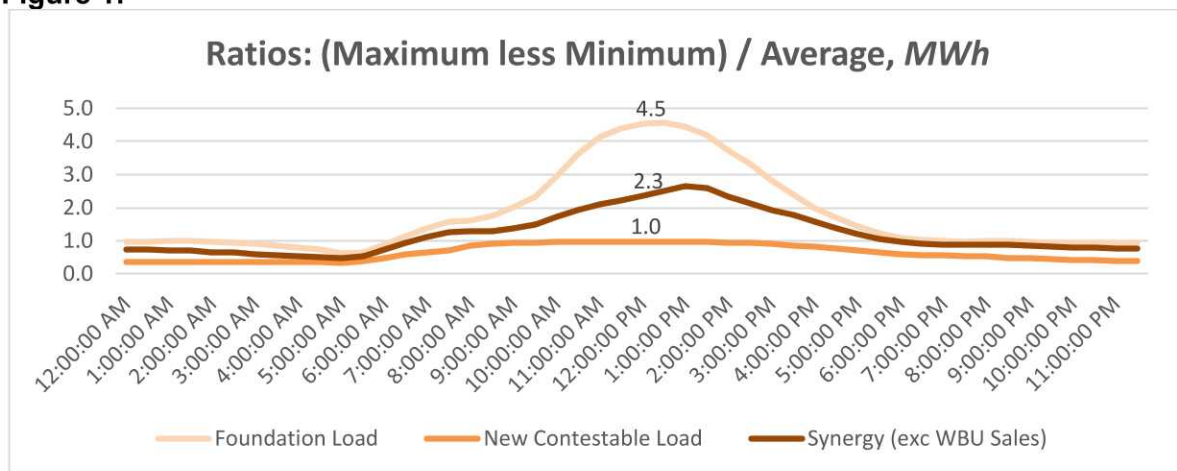
Hedging:

The RCP has suggested that participants will not be affected by a low floor price because they will be effectively hedged against such prices by their bilateral contracts or retail books. In Synergy's case, the proposed hedging is infeasible and founded on a lack of understanding by the RCP as to what drives Synergy's exposure.

As the default supplier, Synergy has no discretion over the make of its residential book (i.e. its “**Foundation Load**”) which constitutes 62%² of total customer demand during periods of peak demand and operates as a generator during periods of low demand (calendar year 2019). Nor does Synergy have control over the federal renewable energy target that have led to increasing solar penetration within the Foundation Load.

Figure 1 below shows a trend of the range of variance in demand³ for Synergy’s Foundation Load and New Contestable Load during calendar year 2019. On average at 12:00 PM, the Foundation Load observed a variance of 1,415MWh between maximum and minimum demand over an average demand of 319MWh which equates to a ratio of 4.5. During the same interval, the New Contestable Load experienced a ratio of 1.0.

Figure 1:



In comparison to the New Contestable Load, the volatility observed in the Foundation Load is significantly more difficult to hedge against due to the significant fluctuation in demand. This fluctuation is caused by the increase in solar penetration which has led to demand from the residential book becoming negative and turning the Foundation Load into a generator during periods of low load. This, combined with the requirement to provide LFAS, means that Synergy has negative demand, and a concurrent obligation to supply, which creates exposure to the Minimum STEM Price due to no fault of its own.

This exposure is set to continually increase considering growth of solar penetration at a rate of 200MWh to 230MWh each year. The Foundation Load’s maximum demand is in excess of 2,100MWh above Synergy’s own generation capacity and minimum demand is at c. -100MWh. Contrary to the statements made in the Draft Report, these fluctuating demand levels cannot be prudently hedged against in the WEM.

Lastly, the premise of hedging requires Market Participants to be notified sufficiently in advance of Gate Closure in order to reflect this in their pricing. As illustrated by the three intervals in which the SWIS reached Minimum STEM Price to date, there was no indication of reaching the price floor prior to the actual occurrence. Synergy notes this issue will occur more regularly as the balancing price is set at the floor price more often.

² 62% is the proportion of Foundation Load with respect to Synergy’s Contract Book and excludes on market (STEM and Balancing) sales and purchases.

³ Variance in demand is calculated as (maximum demand less minimum demand) divided by average demand

Demand volatility in the Foundation Load and market design issues such as variance in forecasting therefore make it exceedingly difficult for Synergy to hedge effectively.

Externalities:

Synergy disagrees with the suggestion that externalities should be considered in the determination of an appropriate Minimum STEM Price and notes that there are serious implications for the market if this approach is adopted.

Primarily, Synergy considers that accounting for externalities in the floor price will exacerbate the reasons a Facility may offer at the floor price and further exacerbate the effects associated with the floor price being set at a value that is unrelated to differentiation of decommitment costs (as outlined in Part 1 of this submission).

Synergy defines 'non-market-related externalities' as the considerations (costs, benefits, contracts, etc) associated with using generation plant for purposes other than providing energy for the electricity market. In the same way non electricity market revenues such as steam revenues are considered externalities, so are PPA contracts.

A facility may have contractual drivers that influence its bidding and in turn, artificially skew decommitment costs to a significantly lower figure. As observed by the price floor events on Sunday 13 October, Non-Scheduled Generation accounted for 10% of energy offered at the floor. It is more prudent to assume that the decision to offer at the price floor is influenced by external contracts as opposed to a true reflection of its decommitment costs.

Ultimately, if there is an external contract in place which has a 'must run' provision, then the turn down price is theoretically infinite which means its decommitment cost accounting for externalities is also negative infinity.

It is inappropriate and economically inefficient to allow external markets and externalities to drive electricity market outcomes. Allowing so will not only render market outcomes irrelevant but is also discriminatory against market participants who do not have such facilities or are not subject to the same contractual obligations.

During the impending periodic review, it is imperative that AEMO seriously consider whether the benefits of setting a floor price low enough to recover the decommitment costs of generators accounting for externalities outweigh the economic consequences to the market.

Price elasticity:

When the market clears at the Minimum STEM Price for reasons other than differentiating between decommitment costs of different generators, the most efficient floor price is the minimum price at which there is no price elasticity in the Balancing Merit Order (BMO).

Such a floor price allows a functioning market to operate when prices settle above that price, but, when the price does reach the floor price, the market inefficiencies and market flaws associated with a price clearing that is unrelated to the costs of producing the relevant electricity are not compounded by an artificially low floor price.

Feedback on the proposed mechanism to allow AEMO to determine that the Minimum STEM Price is appropriate and does not need to be newly determined in a given year.

Synergy agrees with the Rule Change Panel's view that the existing Minimum STEM Price is inadequate as it is not reflective of the changing market conditions and supports the review of the Minimum STEM Price in accordance with the approach prescribed in clause 6.20.6 of the draft amending rules.

Feedback on the methodology and guiding principles that AEMO must follow when determining the Minimum STEM Price.

Methodology:

The methodology suggested by RCP is broadly in line with the approach taken to determine the Margin Peak and Off Peak values. Synergy is supportive of this approach and encourages AEMO to work closely with Market Participants during the determination to ensure assumptions are accurate.

Although largely supportive of clauses 6.20.8A and 6.20.8B of the draft amending rules, Synergy notes that no quantitative rationale has been provided for selecting 90% as the cut-off and therefore, may not be the most efficient cut-off. A more appropriate approach would be to select the threshold based on price elasticity, slightly below the point at which there are no more meaningful quantities offered and therefore negligible efficiency gain. Synergy therefore proposes that the 90% explicit threshold is removed.

Guiding principles:

Synergy reiterates its suggestions from the initial Draft Rule Change Proposal (RC_2019_05) on the guiding principles that should be adopted in the determination of an appropriate price floor.

Facilities which are obligated to offer at the Minimum STEM Price are recommended for exclusion from the analysis as there is no benefit in determining decommitment costs for a unit that must be constrained on during periods of low demand. Similarly, Synergy maintains that analysis should be absent of non-market-related externalities and that the Minimum STEM price should factor in price elasticity in its determination.

Feedback on whether the cost for the reviews, as estimated by AEMO, justify the benefits of including the Minimum STEM Price in the annual review of the Energy Price Limits as well as feedback on the level of costs stakeholders consider would justify the benefits of annually reviewing the Minimum STEM Price.

During the three intervals in which Minimum STEM Price was reached in October 2019, the impact to Synergy, and therefore tax payers, was close to a quarter of a million dollars. Any generator who lacked a sufficient contract position to cover their minimum stable generation would also have been exposed.

Although this would have provided a windfall gain to retailers and windfall loss for generators who were not adequately hedged, there was no overall gain in the market. This transfer of wealth provides no increase in economic efficiency and conversely, expedites the secession of base load generation which is likely to increase long term electricity supply costs.

Given that the frequency of the price floor is anticipated to increase and the transference of wealth at the tax-payer expense is also likely to increase, the preliminary cost of up to \$300,000 for the initial review set by AEMO is justifiable.

Synergy also notes that if the RCP's proposed two-tiered mechanism for the annual review of the Minimum STEM Price is adopted, this would result in downward pressure on subsequent costs on reviews, currently estimated at \$70,000, borne by AEMO.

2. Please provide an assessment whether the change will better facilitate the achievement of the Wholesale Market Objectives.

Although the RCP's proposal to implement a two-tiered approach to the periodic review process for Minimum STEM Price is economically efficient (Market Objective (a)), benefits to the Market will be rendered obsolete if the determination of Minimum STEM Price results in a figure at, near, or lower than, $-\$1,000/\text{MWh}$.

If an inefficiently low floor price is set, this would exacerbate the adverse impacts associated with existing market design flaws and result in outcomes which are inconsistent with the intent of Market Objectives (a), (c) and (d) which promote market efficiency, avoiding discrimination against particular energy options and minimising the long-term supply of electricity.

Setting the Minimum STEM Price higher than $-\$1,000/\text{MWh}$ until these market design issues are addressed would better serve Market Objective (a) in facilitating economic efficiency and allow the tiebreaking mechanisms to decide which facility turns off. This would avoid issues associated with the floor price being set artificially and inefficiently low for reasons unrelated to differentiating decommitment costs of generating facilities.

3. Please indicate if the proposed change will have any implications for your organisation (for example changes to your IT or business systems) and any costs involved in implementing these changes.

The additional work resulting from the introduction of a new periodic review process on the Minimum STEM Price will be managed as part of BAU processes, as will implementation of new Minimum STEM Prices arising from the review.

4. Please indicate the time required for your organisation to implement the change, should it be accepted as proposed.

Synergy understands that a tentative commencement date of 8:00 AM on 20 May 2020 has been advised for the amending rules.

No issues are foreseen in meeting this timeframe.
